



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/929,267	08/14/2001	Hans-Wulf Pfeiffer	03466-P0001B	9985
24126	7590	12/24/2003	EXAMINER	
ST. ONGE STEWARD JOHNSTON & REENS, LLC 986 BEDFORD STREET STAMFORD, CT 06905-5619			FIORILLA, CHRISTOPHER A	
			ART UNIT	PAPER NUMBER
			1731	

DATE MAILED: 12/24/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	09/929,267		PFEIFFER, HANS-WULF	
	Examiner		Art Unit	
	Christopher A. Fiorilla		1731	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1731

1. Claims 1-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is indefinite in that the preamble refers to the “boundary layer” but the body of the claim makes no mention of this layer.

In claim 1, line 4, “Zirconia” should be changed to - - zirconia - -.

In claim 1, line 11, the phrase “the predefined surface area” has no antecedent basis.

In claim 1, lines 14-15, the phrase “wherein the predetermined diameter for the tool does not exceed a critical value ranging from about 0.1 mm to about 4 mm” is indefinite. The phrase is intended to create an upper but the existence of a range renders the claim indefinite in that the metes and bounds of the claim cannot be readily determined.

In claim 2, the phrase “preferably ranges from about .1mm to about 1mm” is indefinite. The presence of the word “preferable” makes it unclear as to the actual metes and bounds of the claim.

In claim 3, the phrase “the boundary layer of the workpiece” has no antecedent basis.

Claim 6 is indefinite in that it is dependent upon itself.

Claim 10 is indefinite in that the preamble refers to the “boundary layer” but the body of the claim makes no mention of this layer.

In claim 1, line 4, “Zerconia” should be changed to - - zirconia - -. Note spelling error.

In claim 11, the phrase “preferably ranges from about .1mm to about 1mm” is indefinite. The presence of the word “preferable” makes it unclear as to the actual metes and bounds of the claim.

Art Unit: 1731

In claim 12, the phrase “the boundary layer of the workpiece” has no antecedent basis.

2. Claims 4,5,13 and 14 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

In claim 4, the phrase “all over its surface” is recited which does not further limit parent claim 1 which recites “less than a total surface area of the workpiece”.

Claim 4 recites “a plurality of tools” which does not further limit parent claim 1 which recites “a tool” (singular).

Claim 5 recites “a plurality of spheres” which does not further limit parent claim 1 which recites “a tool” (singular).

In claim 13, the phrase “all over its surface” is recited which does not further limit parent claim 10 which recites “less than a total surface area of the workpiece”.

Claim 13 recites “a plurality of tools” which does not further limit parent claim 1 which recites “a tool” (singular).

Claim 14 recites “a plurality of spheres” which does not further limit parent claim 10 which recites “a tool” (singular).

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

Art Unit: 1731

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brookes (5,128,083) in view of Thomas et al. (3,573,023), Rokutanda et al. (6,153,023) and Abstract of JP 04108675.

Brookes teaches the basic claimed process of increasing the strength of workpieces manufactured of ceramic materials comprising the steps of:

- providing a workpiece, which does not comprise zirconia (col. 1, lines 7-9);
- providing a tool having the same order of hardness as the workpiece (col. 1, line 57);
- contacting the workpiece with the tool;
- producing a plastic deformation (col. 2, lines 47-48) on the surface of the workpiece.

The shapes of the treating materials disclosed by Brookes at col. 1, lines 43-46, would suggest the use of the claimed tools to one of ordinary skill in the art at the time of the invention.

Brooks does not specifically disclose carrying out the process at a temperature which is not elevated above room temperature nor does it disclose the specific configuration (i.e. diameter) of the tool.

Thomas et al. discloses that that surface modification of brittle materials such as ceramics can be carried out either with or without heating (see e.g. col. 1, lines 54-60). It would have been obvious to one skilled in the art at the time of the invention to carry out the process of Brookes at room temperature as taught by Thomas et al. in order to achieve cost savings and to simplify the process.

Art Unit: 1731

Rokutanda et al. discloses a tool (i.e. shot) for producing a point load as taught by Brookes. Rokutanda et al. discloses that the diameter of the tool is less than 300 μ m (see col. 1, lines 34-35). It would have been obvious to use a tool having such a diameter, in the process of Brookes in view of the generic disclosure therein.

The Abstract of JP 04108675 discloses a process of shot peening, barrel polishing or honing the surface of a ceramic article (points of maximum stress or the whole surface) whereby improved strength and crack resistance is obtained. JP 04108675 discloses that shot peening can be applied to the whole surface or points to be subjected to max. stress and this teaching would clearly suggest contacting the workpiece within a predetermined area that is less than the total surface area of the workpiece. It would have been obvious to one having ordinary skill in the art at the time of the invention to treat only a portion of the workpiece of Brookes in view of the teachings of JP 04108675 to obtain an article of desired configuration.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christopher A. Fiorilla whose telephone number is (571) 272-1187. The examiner can normally be reached on M-F, 6:30am-3:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven P. Griffin can be reached on (571) 272-1189. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0651.



CHRISTOPHER A. FIORILLA
PRIMARY EXAMINER
ART UNIT 1731